

Appl. No.10/626,464
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Amendment Filed 09/29/2006

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REMARKS

Claims 1-21 are pending in the application. Claims 1, 16-21 were amended in order to delete the word "enhanced".

Claim rejections-35 U.S.C. § 103

Claims 1-21 have been rejected under 35 U.S.C. §103(a) as being obvious over the combined teachings of Burnham (US 6,841,515), Burnham *et al.* (US 5,853,450) and Kimura (US 5,093,262). The Examiner mentioned that it would have been obvious to the ordinary artisan at the time the invention was made to have made a granular fertilizer composition comprising a bacterial fermentation product because the prior art teaches solid fertilizer compositions comprising known NPK fertilizer components in combination with bacterial materials. In order to overcome this rejection, Applicant wishes to respectfully point out that the document of Burnham teaches a method of production of encapsulated and/or concentrically-constructed fertilizer. The document of Burnham teaches that biosolids can be processed into granules constructed of a core with one or more surrounding layers to give controlled performance or sustained release to match the desired use of the granules. More specifically, the micro-organisms are included in one or more layers of the granule. Burnham teaches a method that allows controlled release of the active contents. In addition, the encapsulating outer layer needs to dissolve itself in order to release the micro-organism. Thus, it is believed that the document of Burnham teaches away from the present application since the present application is claiming a fertilizer wherein the bacteria are active immediately, i.e. readily available and without lag time. The present application teaches, and claims in amended claim 1, a method of producing a fertilizer comprising the step of mixing a granular fertilizer with a ferment comprising active bacteria, wherein bacteria are obtained from a fermentation stopped before bacteria get into a dormant stage, which will cause the bacteria to have a lag time upon re-hydration. Support for amended claim 1 can be found on page 5 and 6 of the present description. The bacteria once sprayed on the fertilizer are ready to resume their growth and/or activity upon application. There is no lag time of the bacteria as there is in the method of Burnham. The objective of the encapsulating outer layer taught in Burnham is to allow a control on the release of the active contents and not to allow immediate activation of the bacteria and thus without lag time. It is clearly stated in column

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4, lines 56-60 of Burnham that "*Accordingly, the inventors realized great improvement to the art of biosolid use may be obtained by 1) limiting exposure and activation of active substances in the biosolid during storage, and 2) control of biosolid disintegration during use...*". The present application is claiming bacteria that, once sprayed on the fertilizer, are ready to resume their growth and/or activity upon application and there is no control or limitation on their activation as taught by Burnham. Applicant further would like to point out that claim 16 was amended to claim a fertilizer produced by the method of the present invention wherein the bacteria are active upon re-hydration without lag time. Support can be found on page 8 of the present description.

In addition, Applicant wishes to submit that the present application is claiming a method for producing a fertilizer or a fertilizer produced by said method wherein the ferment is used at a rate of at most 3 liters of ferment per ton of fertilizer. As mentioned on page 6 of the present application, spraying the fertilizer at a higher rate will cause the fertilizer to partly solubilize, liberating nitrogen concentrated at the surface of the fertilizer, in the vicinity of the bacteria, which is toxic to the bacteria in such concentrated micro-environment. Consequently, a person skilled in the art with the teaching of the present application would recognize that dissolving the fertilizer in greater volume would cause toxicity to the bacteria. Thus, nowhere in Burnham is there any teaching or even suggestion of a method of producing a fertilizer comprising the step of mixing a granular fertilizer with a ferment comprising active bacteria, wherein bacteria are obtained from a fermentation stopped before bacteria get into a dormant stage and therefore have no lag time upon re-hydration, and that a ferment is used at a rate of at most 3 liters of ferment per ton of fertilizer in order to not cause toxicity to the bacteria. Further, the present application is claiming that the ferment is used at a rate of 0.5 to 2.0 liter of ferment per ton of granular fertilizer (claim 2); that the ferment is cooled down prior to being mixed with the granular fertilizer (claims 3-5); that the ferment of active bacteria is obtained by fermentation of said bacteria until the end of the exponential growth phase (claims 6-8). Nowhere in Burnham is there any teaching or even suggestion of the subject matter presented hereinabove and claimed in the present application. Thus, it is believed that there is no incentive in Burnham that will lead a person skilled in the art to obtain the present invention.

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Regarding the document of Burnham *et al.*, the Examiner mentioned that Burnham *et al.* teaches the utility of incorporating wastewater or bioorganic sludges including microbial matter in fertilizer compositions. Applicant wishes to respectfully point out to the Examiner that the document of Burnham *et al.* teaches a method of treating wastewater or bioorganic sludges containing odor, animal viruses, pathogenic bacteria and parasites to produce a bioactive but stabilized product that is useful as a soil substitute or as a fertilizer. Nowhere in Burnham *et al.* is there any teaching, or even a suggestion of a method of producing a fertilizer comprising the step of mixing a granular fertilizer with a ferment comprising active bacteria, wherein the bacteria are obtained from a fermentation stopped before bacteria reach a dormant stage and thus have a lag time upon re-hydration, as claimed in claim 1. On the contrary, a person skilled in the art would acknowledge that the drying of the mixture taught by Burnham *et al.* will induce not so good condition for bacteria, damaging them and thus causing a lag time in activation of bacteria in the fertilizer produced. In addition, nowhere in Burnham *et al.* is there any teaching or even suggestion of a ferment being used at a rate of at most 3 liters of ferment per ton of fertilizer as claimed in the present application. In addition, Applicant wishes to point out that the present application is claiming that the ferment is used at a rate of 0.5 to 2.0 liter of ferment per ton of granular fertilizer (claim 2); that the ferment is cooled down prior to being mixed with the granular fertilizer (claims 3-5); that the ferment of active bacteria is obtained by fermentation of said bacteria until the end of the exponential growth phase (claims 6-8). Nowhere in Burnham *et al.* is there any teaching or a remotely suggestion of these subject matter claimed in the present application. On the contrary, Burnham *et al.* is teaching away from the present application since Burnham *et al.* is disclosing a "heating drying" method wherein the liquid sludge is heated. In the present application, the ferment is cooled down prior to being mixed with the granular fertilizer. Consequently, it is believed that there is no incentive in Burnham *et al.* alone or in combination with the teaching found in Burnham, for person skilled in the art to obtain the present invention since Burnham *et al.* is not teaching or even suggesting a method of producing a fertilizer comprising the step of mixing a granular fertilizer with a ferment comprising active bacteria obtained from a fermentation of stopped in order to allow bacteria to be activated without lag time and that a

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ferment is used at a rate of at most 3 liters of ferment per ton of fertilizer in order to not cause toxicity to the bacteria.

Regarding the document of Kimura, the Examiner mentioned the Kimura teaches a method of incorporating nitrogen fixing bacillus material into dried fertilizer compositions containing NPK fertilizer materials. Again, Applicant wishes to respectfully point out that nowhere in Kimura is there any teaching, or even a suggestion, of a method of producing a fertilizer comprising the step of mixing a granular fertilizer with a ferment comprising active bacteria obtained from a fermentation stopped before bacteria reach a dormant stage and thus have a lag time upon re-hydration. In addition, nowhere in Kimura a ferment being used at a rate of at most 3 liters of ferment per ton of fertilizer is taught or even suggested. Further, nowhere in Kimura *et al.* is there teaching or suggestion of a ferment being used at a rate of 0.5 to 2.0 liter of ferment per ton of granular fertilizer; of a ferment being cooled down prior to being mixed with the granular fertilizer; of a ferment of active bacteria being obtained by fermentation of said bacteria until the end of the exponential growth phase as claimed in the present application. Consequently, Kimura is not teaching or even suggesting method of producing a fertilizer comprising the step of mixing a granular fertilizer with a ferment comprising active bacteria obtained from a fermentation of the bacteria stopped to allow bacteria to be activated without lag time and that a ferment is used at a rate of at most 3 liters of ferment per ton of fertilizer in order to not cause toxicity to the bacteria.

It is thus believed that there is no incentive in Kimura alone or in combination with the teaching found in Burnham and Burnham *et al.*, for person skilled in the art to obtain the present invention since none of these documents teach or suggest method of producing a fertilizer comprising the step of mixing a granular fertilizer with a ferment comprising active bacteria obtained from a fermentation stopped to allow bacteria to be activated without lag time and that a ferment is used at a rate of at most 3 liters of ferment per ton of fertilizer in order to not cause toxicity to the bacteria.

In view of the amendments and arguments presented hereinabove, reconsideration of Examiner's rejections under 35 U.S.C. §103(a), is earnestly requested.

It is submitted, therefore, that the claims are now in condition for allowance. Reconsideration of the Examiner's rejections is respectfully requested. Allowance of claims 1-21 at an early date is solicited.

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The Commissioner is authorized to charge fee deficiencies or credit overpayments associated with this submission to the NIXON PEABODY LLP Deposit Account No. 19-2380.

In the event that there are any questions concerning this amendment or the application in general, the Examiner is respectfully urged to telephone the undersigned so that prosecution of this application may be expedited.

Respectfully submitted,

Date:

9/28/06

By:

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